

CLAIMS

1. An osteoinductive artificial bone comprising:

a porous body comprising a lump of titanium or titanium alloy and having a porosity of 30 to 80%, the body having a pore interconnected in a three-dimensional network with a diameter of 100 to 3000 μm and a hole with a diameter of 50 μm or less on an inner surface of the pore; and

a film formed on at least a part of a surface of the pore and the hole, the film comprising at least one phase selected from the group consisting of an amorphous titanium oxide phase, an amorphous alkali titanate phase, an anatase phase and a rutile phase aligned with (101) plane.

2. The artificial bone of claim 1, wherein the film has a thickness of 0.1 to 10.0 μm .

3. A method of manufacturing an osteoinductive artificial bone, the method comprising :

providing a porous body comprising a lump of titanium or titanium alloy and having a porosity of 30 to 80%, the body having a pore interconnected in a three-dimensional network with a diameter of 100 to 3000 μm and a hole with a diameter of 50 μm or less on an inner surface of the pore; and

immersing the body in an alkaline aqueous solution.

4. The method of claim 3, wherein the body is obtained by plasma-spraying titanium powder on a sprayed body.

5. The method of claim 4, wherein the titanium powder comprises a

group of irregular particles and each of the particles is porous.

6. The method of claim 4 or 5, wherein the titanium powder comprises a fine powder having a particle diameter of 20 to 30 μm and a coarse powder having a particle diameter of 100 to 300 μm .

7. The method of any one of claims 3 to 6, further comprising heating the body after the immersion.

8. The method of claim 7, wherein the heating temperature is 200 to 800 $^{\circ}\text{C}$.

9. The method of claim 7 or 8, further comprising immersing the body in water after the immersion in an alkaline aqueous solution before the heat.

10. A method of manufacturing an osteoinductive artificial bone, the method comprising :

providing a porous body comprising a lump of titanium or titanium alloy and having a porosity of 30 to 80%, the body having a pore interconnected in a three-dimensional network with a diameter of 100 to 3000 μm and a hole with a diameter of 50 μm or less on an inner surface of the pore; and

anodizing the body in an electrolytic solution.